

In re Application of:
Ulrich Braun
Application No.: Not Yet Assigned
US Submission Date: December 15, 2005
Based on Intl Appl: PCT/EP2004/006439
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B. In the Claims

Please amend claims 2 to 25 and 27 to 50. Please add claim 51 without prejudice.

Upon entry of the present amendment, the claims will stand as follows in the present application:

1. (original) Method for treatment and loop-processing of waste waters comprising the steps as follows:
 - (a) separate collection of the partial streams grey water, or one or more of the partial streams thereof and black water or brown water and yellow water, and
 - (b) desalination of a part or total parts of at least one of the separated collected partial streams of (a), and
 - (c) reuse of the desalinated liquid phase of (b) to
 - (c.i) collection of black water or brown water and/or yellow water in (a), or
 - (c.ii) other uses, and
 - (d) repetition of the steps (a) to (c) one or more times.
2. (currently amended) Method according to claim 1~~claim 1~~, whereas the desalination in step (b) comprises an ureolysis.
3. (currently amended) Method according to claim 1~~claims 1) and 2)~~, whereas the desalination in step (b) comprises the following steps:
 - (b.a) ureolysis, and
 - (b.b) removal of the nutrient salts.

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4. (currently amended) Method according to claim 1~~claims 1) and 3)~~, whereas the desalination according to claim 1), step (b), as well as the removal of nutrient salts of claim 3), step (b) is a struvite precipitation.

5. (currently amended) Method according to claim 1~~claims 1) to 4)~~, whereas after the desalination in step (b) the following step is proceeded:

(c) second desalination.

6. (currently amended) Method according to claim 5~~claim 5)~~, whereas the second desalination comprises the univalent inorganic salts.

7. (currently amended) Method according to claim 1~~claims 1) to 6)~~, whereas before step (b) the following step is proceeded:

(a.i) Liquid/solids separation of at least one of the separate collected partial streams obtained in (a).

8. (currently amended) Method according to claim 1~~claims 1) to 7)~~, whereas after step (b) the following step is proceeded:

(b.i) oxidation of at least one of in (b) obtained low-salt phases from separate collected black water and/or brown water.

9. (currently amended) Method according to claim 8~~claim 8)~~, whereas after step (b.i) the following step is proceeded:

(b.ii) liquid/solids separation of at least one of the products of (b.i) of separate collected black water and/or brown water.

10. (currently amended) Method according to claim 9~~claim 9)~~, whereas after step (b.ii) the following step is proceeded:

(b.iii) UV-Oxidation of the liquid phase of at least one of the products of (b.ii) from separate collected black water and/or brown water.

11. (currently amended) Method according to claim 1~~claims (1) to (10)~~, whereas step (b) is a ultra or nano filtration.

12. (currently amended) Method according to claim 3~~claims (3) to (11)~~ whereas between step (b.a) and (b.b) a metered addition of substances in solid or liquid form.

13. (currently amended) Method according to claim 12~~claim (12)~~, whereas the metered addition comprises the alkali KOH, and/or the substances $\text{Mg}(\text{CH}_3\text{COO})_2$ and/or $\text{Mg}(\text{COO})_2$ and/or potassium phosphate compounds with, and/or without hydrogen.

14. (currently amended) Method according to claim 13~~claim (13)~~, whereas the metered addition is proceeded with stoichiometric amounts being adapted to the concentrations of ammonium within the liquid to be treated.

15. (currently amended) Method and device according to claim 12~~claim (12)~~, whereas the metered addition of substances is proceeded according to that amount of ammonium, which is necessary, to render the equalisation of the pH decrease, caused by the transformation of ammonium to nitrate, in the oxidation of step (b.i) possible, which neutralises the basic milieu of the discharge of step (b).

16. (currently amended) Method according to claim 5~~claims (5) to (15)~~, whereas the desalination in step (c) is a reverse osmosis.

17. (currently amended) Method according to claim 1~~claims (1) to (16)~~, whereas steps (b) and (c) are executed in one holding tank, or in two hydraulically not separated holding tanks.

18. (currently amended) Method according to claim 10~~one of the claims (10) to (17)~~, whereas step (b.iii) is a activated carbon adsorption and/or ozonisation and/or UV treatment.

19. (currently amended) Method according to claim 1~~claim (1)~~, whereas the desalination is a complexation of bivalent ions with a complex-forming agent.

20. (currently amended) Method according to claim 19~~claim (19)~~, whereas the complex-forming agent is amino phosphonic acid.

21. (currently amended) Method according to claim 19~~claims (19) and (20)~~, whereas the complex-forming agent can be added at ever step before step (b).

22. (currently amended) Method according to claim 1~~claims (1) to (21)~~, whereas the method comprises the following steps parallel to one, several or all preceding steps:

- (i) separate collection of the partial streams grey water, or one or more of the partial streams thereof and black water or brown water and yellow water, and
- (ii) membrane filtration of the separate in (i) collected grey water, or one, or several partial steams thereof.

23. (currently amended) Method according to claim 1~~claims (1) to (22)~~, whereas the method comprises the following steps parallel to one, several or all preceding steps:

- (iii) removal of carbon of the separate in (i) collected grey water, or one, or several partial steams thereof before or after (ii).

24. (currently amended) Method according to claim 10~~claims (10) to (17)~~, comprising the following steps:

- (a) drainage of an aqueous liquid fro a storage tank, and
- (b) usage of this liquid for toilet flushing, which can comprise the collection of faeces and urine, and
- (c) treatment of this liquid, and
- (d) feeding this liquid into said storage tank, and
- (e) UVC treatment of this liquid in said storage tank, and
- (f) repeating steps (a) to (e) one or more times.

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25. (currently amended) Method according to claim 4~~one of the claims (4) to (17)~~, comprising the following steps:

- (a) drainage of an aqueous liquid from a storage tank, and
- (b) treatment of this liquid, and
- (c) usage of this liquid for toilet flushing, which can comprise the collection of faeces and urine, and
- (d) treatment of this liquid, and
- (e) feeding this liquid into said storage tank, and
- (f) increase of the pH value in said storage tank, or in a tank parallel to the storage tank, and
- (g) Repeating steps (a) to (f) one or more times.

26. (original) Device for treatment and loop-processing of waste waters comprising the means as follows:

- (a) a means for the separate collection of the partial streams black water or brown water and yellow water, and
- (b) a means for the desalination of a part or total parts of at least one of the separated collected partial streams of (a), and
- (c) a means for the use of the desalinated liquid phase of (b) to
 - (c.i) collection of black water or brown water and/or yellow water in (a), or
 - (c.ii) other uses, and
- (d) a means for the repetition of the steps (a) to (c) one or more times.

27. (currently amended) Device according to claim 26~~claim 26~~, whereas the desalination means (b) comprises an means for ureolysis.

28. (currently amended) Device according to claim 26~~claims 26) and 27)~~, whereas the means for desalination in (b) comprises the following means:

- (b.a) a means for the ureolysis, and
- (b.b) a means for the removal of the nutrient salts.

29. (currently amended) Device according to claim 26~~claims 26) and 28)~~, whereas the means for desalination ~~according to claim 26)~~, (b), ~~as well as the means for removal of nutrient salts of claim 28)~~, (b) is a means for struvite precipitation.

30. (currently amended) Device according to claim 26~~claims 26) to 29)~~, whereas after the means for desalination in (b) comprises the following means:

- (c) a means for the second desalination.

31. (currently amended) Device according to claim 30~~claim 30)~~, whereas the means for the second desalination comprises a means for the removal of the univalent inorganic salts.

32. (currently amended) Device according to claim 26~~claims 26) to 31)~~, which before means (b) comprises the following means:

- (a.i) a means for the liquid/solids separation of at least one of the separate collected partial streams obtained in (a).

33. (currently amended) Device according to claim 26~~claims 26) to 32)~~, which comprises after means (b) the following means:

- (b.i) a means for the oxidation of at least one of in (b) obtained low-salt phases from separate collected black water and/or brown water.

34. (currently amended) Device according to claim 33~~claim 33~~, which comprises after means (b.i) the following means:

(b.ii) a means for the liquid/solids separation of at least one of the products of (b.i) of separate collected black water and/or brown water.

35. (currently amended) Device according to claim 34~~claim 34~~, which comprises after means (b.ii) the following means:

(b.iii) a means for the UV-Oxidation of the liquid phase of at least one of the products of (b.ii) from separate collected black water and/or brown water.

36. (currently amended) Device according to claim 26~~claims (26) to (35)~~, whereas means (b) is a means for ultra or nano filtration.

37. (currently amended) Device according to claim 26~~claims (26) to (36)~~ whereas between means (b.a) and (b.b) a means for metered addition of substances in solid or liquid form.

38. (currently amended) Device according to claim 37~~claim (37)~~, whereas the means for metered addition comprises the alkali KOH, and/or the substances $\text{Mg}(\text{CH}_3\text{COO})_2$ and/or $\text{Mg}(\text{COO})_2$ and/or potassium phosphate compounds with, and/or without hydrogen.

39. (currently amended) Device according to claim 38~~claim (38)~~, whereas the means for metered addition is proceeded with stoichiometric amounts being adapted to the concentrations of ammonium within the liquid to be treated.

40. (currently amended) Device according to claim 38~~claims (38) and (39)~~, whereas the metered addition of substances is proceeded according to that amount of ammonium, which is necessary, to render the equalisation of the pH decrease, caused by the transformation of ammonium to nitrate, in the oxidation of step (b.i) possible, which neutralises the basic milieu of the discharge of step (b).

41. (currently amended) Device according to claim 30~~claims (30) to (40)~~, whereas the means for desalination in step (c) is a means for reverse osmosis.

42. (currently amended) Device according to claim 26~~claims (26) to (44)~~, whereas the means (b) and (c) comprise one holding tank, or in two hydraulically not separated holding tanks.

43. (currently amended) Device according to claim 35~~one of the claims (35) to (45)~~, whereas means (b.iii) is a means for activated carbon adsorption and/or ozonisation and/or UV treatment.

44. (currently amended) Device according to claim 26~~claim (26)~~, whereas the means for desalination in (b) is a means for complexation of bivalent ions with a complex-forming agent.

45. (currently amended) Device according to claim 44~~claim (44)~~, whereas the means comprises the complex-forming agent is amino phosphonic acid.

46. (currently amended) Device according to claim 44~~claims (44) and (45)~~, whereas the complex-forming agent can be added with a means for metered addition at ever step before means (b).

47. (currently amended) Device according to claim 26~~claims (26) to (46)~~, whereas the means comprises the following means parallel to one, several or all preceding means:

(i) a means for the separate collection of the partial streams grey water, or one or more of the partial streams thereof and black water or brown water and yellow water, and

(ii) a means for the membrane filtration of the separate in (i) collected grey water, or one, or several partial steams thereof.

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48. (currently amended) Device according to claim 26~~claims (26) to (47)~~, whereas the means comprises the following means parallel to one, several or all preceding means:

(iii) a means for the removal of carbon of the separate in (i) collected grey water, or one, or several partial steams thereof before or after (ii).

49. (currently amended) Device according to claim 35~~claims (35) to (48)~~, comprising the following means:

(a) a means for the drainage of an aqueous liquid from a storage tank, and

(b) a means for the usage of this liquid for toilet flushing, which can comprise the collection of faeces and urine, and

(c) a means for the treatment of this liquid, and

(d) a means for the feeding this liquid into the storage tank, and

(e) a means for the UVC treatment of this liquid in the storage tank, and

(f) a means for the repeating steps (a) to (e) one or more times.

50. (currently amended) Device according to claim 28~~one of the claims (28) to (49)~~, comprising the following means:

(a) a means for the drainage of an aqueous liquid from a storage tank, and

(b) a means for the treatment of this liquid, and

(c) a means for the usage of this liquid for toilet flushing, which can comprise the collection of faeces and urine, and

(d) a means for the treatment of this liquid, and

(e) a means for the feeding this liquid into the storage tank, and

(f) a means for the increase of the pH value in the storage tank, or in a tank parallel to the storage tank, and

(g) a means for the Repeating steps (a) to (f) one or more times.

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51. (new) Device according to claims 28, whereas the means for removal of nutrient salts, (b), is a means for struvite precipitation.